Forest Insect & Disease Management

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AN ILLUSTRATED GUIDE TO SOME COMMON ERRORS IN SCIENTIFIC PHOTOGRAPHY AND HOW TO SOLVE THEM

by

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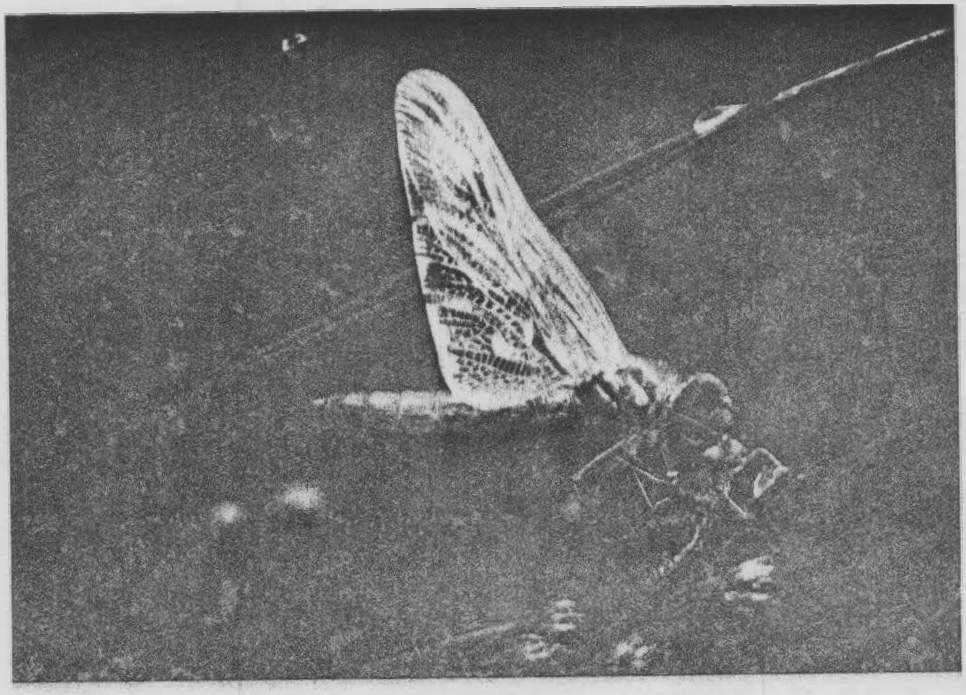

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USDA FOREST SERVICE, ATLANTA, GA 30309

Quality photographs can vastly improve a lecture, technical paper or a publication. Photographs can also be effectively used to document specific behavior, coloration or anything else of importance to the researcher. Unfortunately, many photos poorly represent the subject because of mistakes in exposures, lens flare, distractions, poor composition and many other problems. This publication is designed to help those with a basic knowledge of photography to identify problems in their photos and correct them.

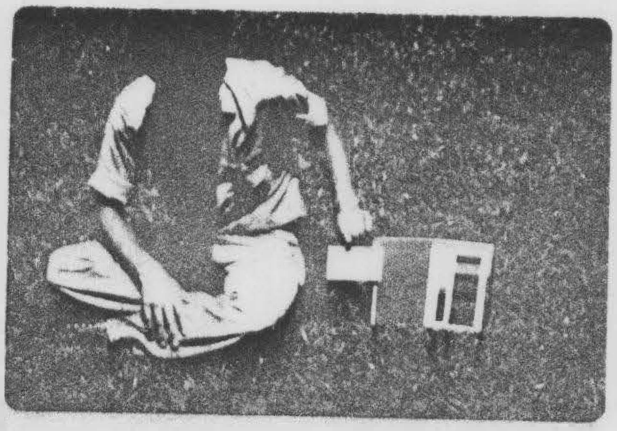
Each photo on the left has the problem identified and then corrected in the photo on the right.

EXPOSURE

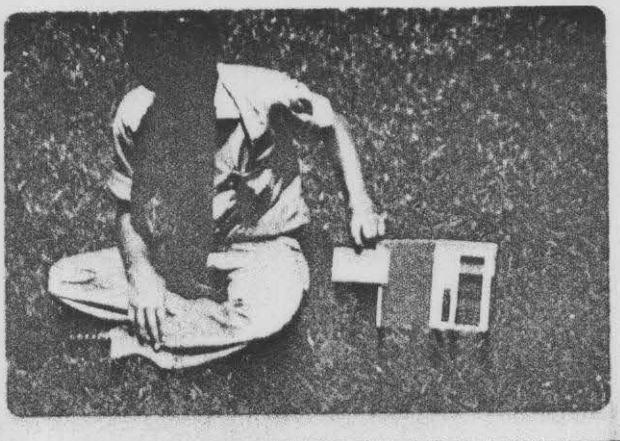
Before consistent, proper exposures can be made, the best exposure index must be found. The exposure index is nothing more than an ASA rating other than the manufacturer's recommendation. Cameras vary a great deal in calibration, therefore the recommended ASA rating may not give the best exposure results. The following procedure will enable the photographer to find the best exposure index for his needs.

Exposure Index Determination:

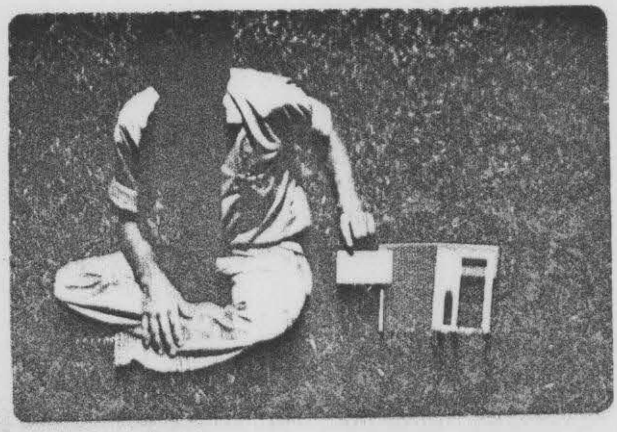
EI 32



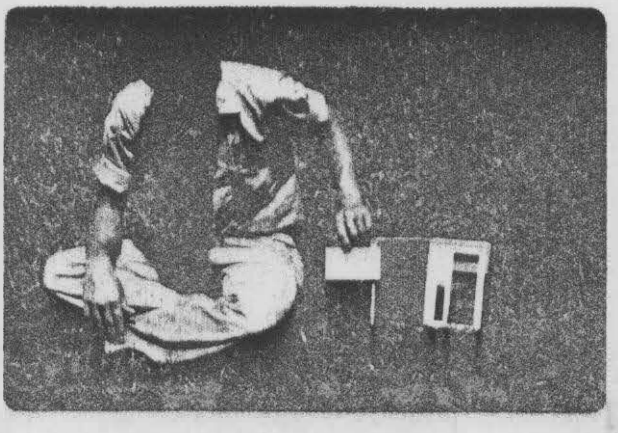
EI 40



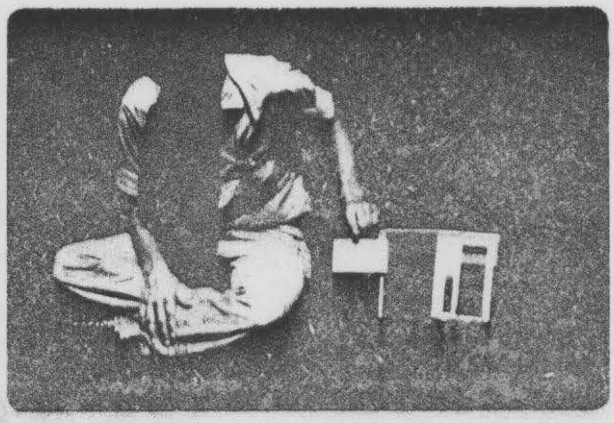
EI 50



EI 64



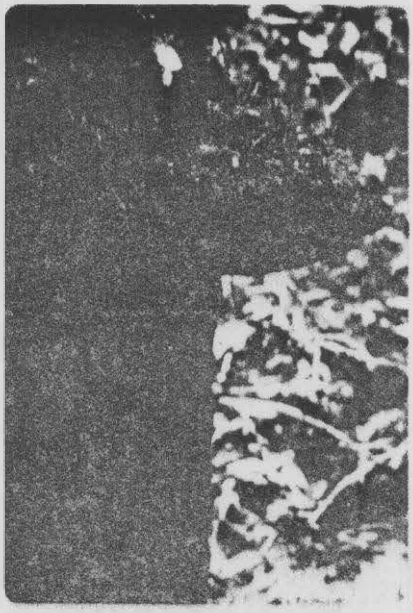
EI 80



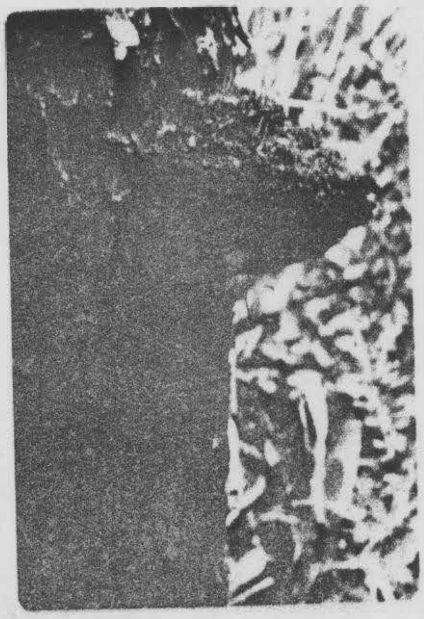
EI 100

1. Place the subject in an area of middle tones, such as foliage.
2. Include a gray scale and color chart if possible.
3. Rate the ASA as shown, placing the recommended exposure index in the center. Be sure to center the light meter needle in each case.
4. Evaluate the transparencies at your normal projection distance. Look for detail in high values and rich color saturation in the middle tones.
5. Set the ASA to the best exposure index for future work with the film tested.

Meter reading - Take your meter from subject, not background.

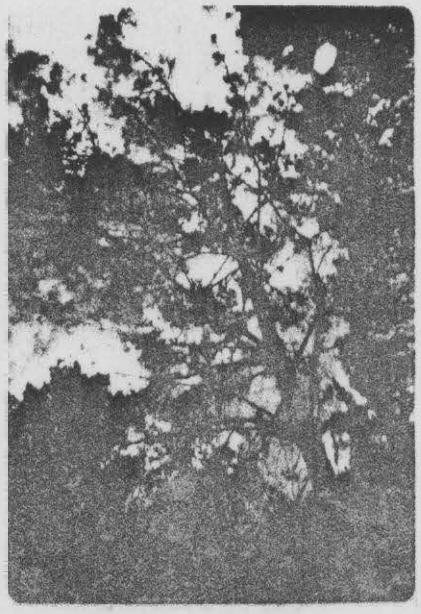


Meter reading from background

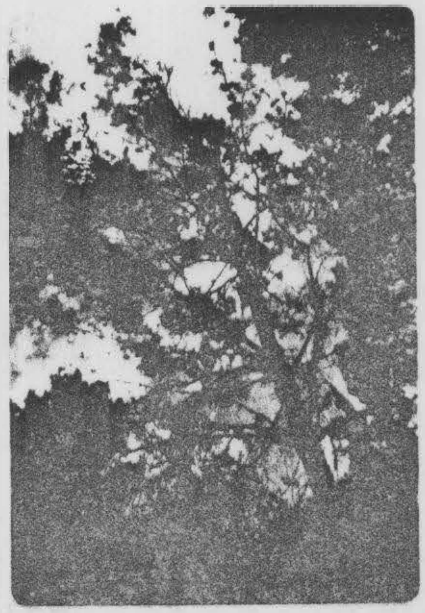


Meter reading from subject

Lens flare - Use a lens shade and be sure no light is striking the lens directly.



Lens flare in upper right corner



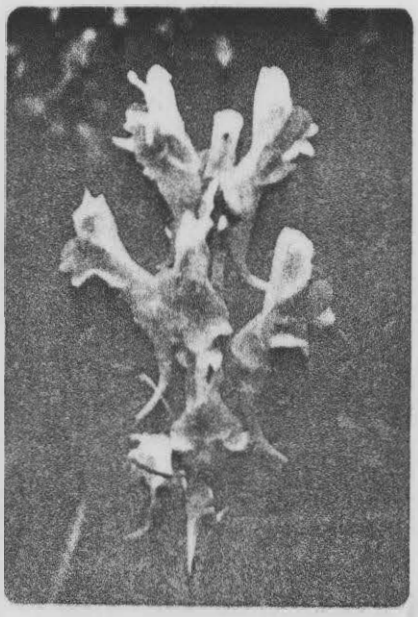
No lens flare

Distracting foreground - Photograph from a different angle or remove distraction.

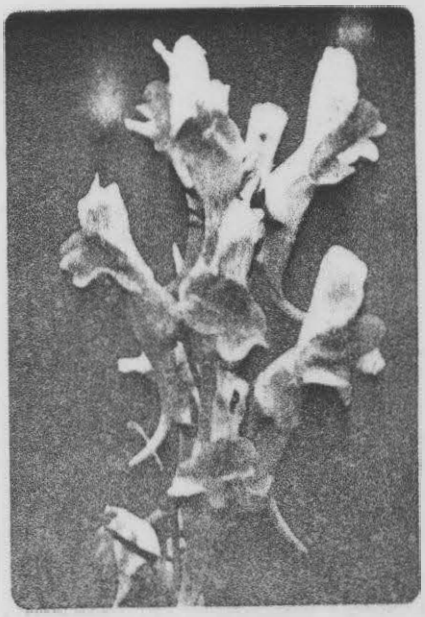
Distracting foreground

No distracting foreground

Distracting background - Use a longer focal length lens to blur the background distractions.



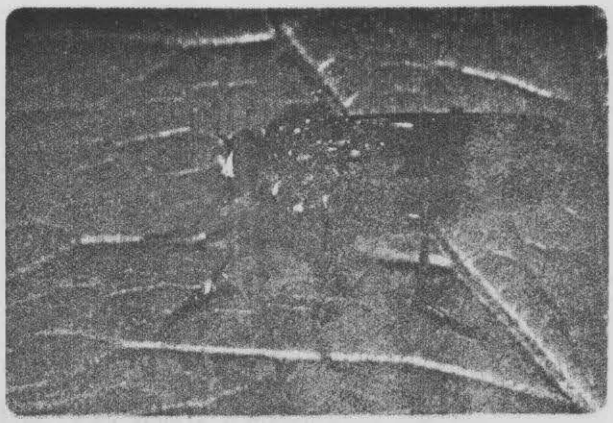
Short focal length lens



Long focal length lens

Subject merging into background - Photograph from a different angle or use an artificial background.

Subject merging into the background



Subject separate from the background

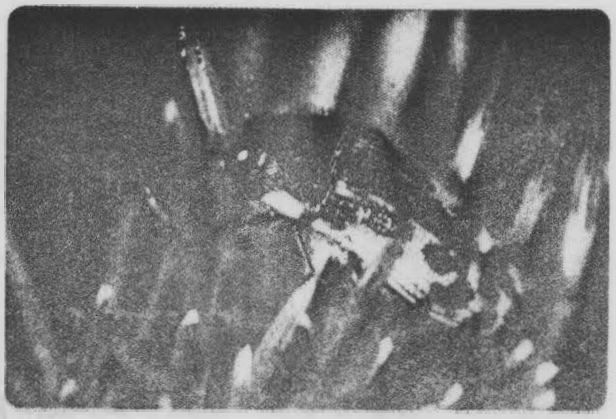
Black band in photo - Flash synchronization not set correctly, use $\frac{1}{60}$ sec. or slower.

Improper shutter speed

Proper shutter speed

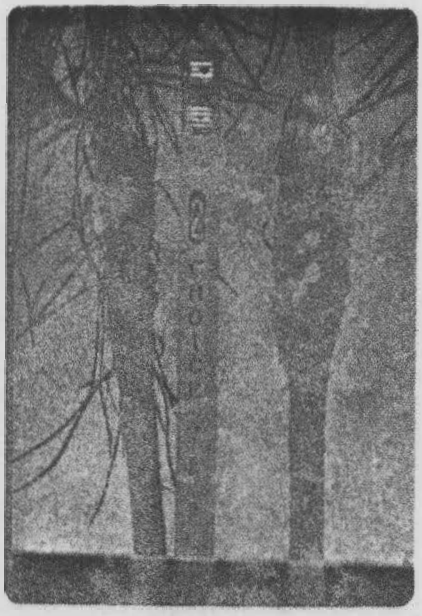
Subject too small - Move in closer to emphasize the subject.

Subject too small

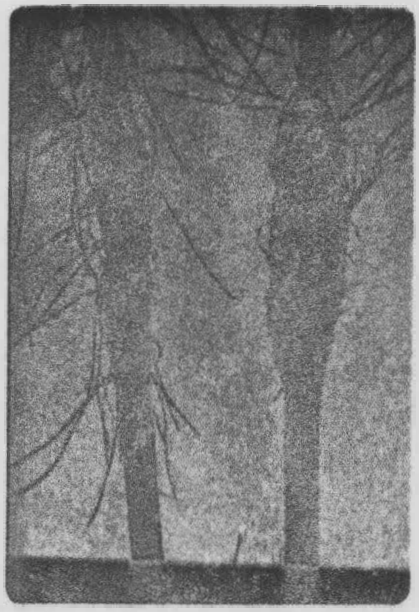


Subject filling the frame

Foreign object in photo - If a scale reference is essential (they rarely are) use something which is calibrated.



Pencil in the frame



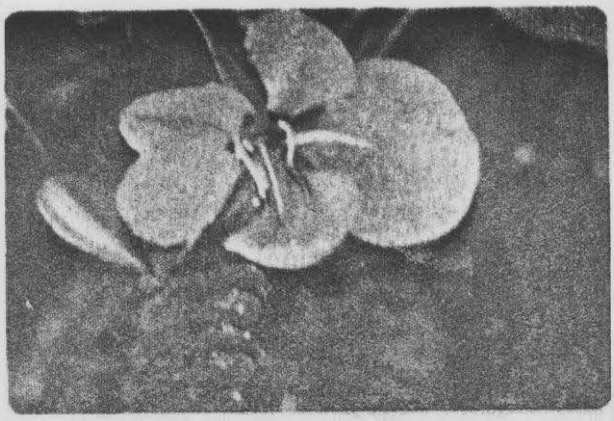
Pencil removed from picture

Lacking depth-of-field - Use a tripod when necessary to [illegible] the lens down for sufficient depth-of-field.

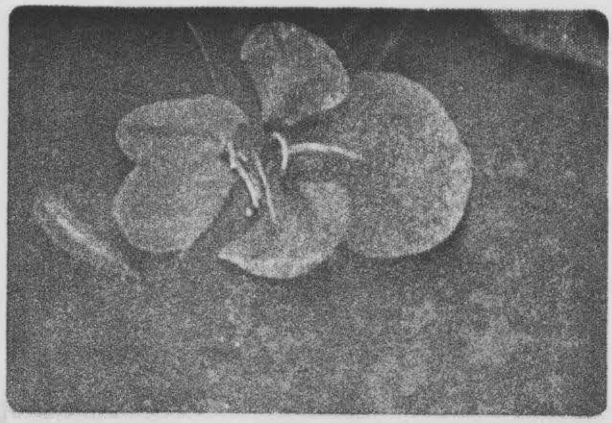
Poor depth-of-field

Proper depth-of-field

Unsharpness - Use a wind block or ties to prevent subject movement. Use a tripod to prevent camera movement.



Unsharpness caused by subject movement



Wind blocks were used to stop motion.

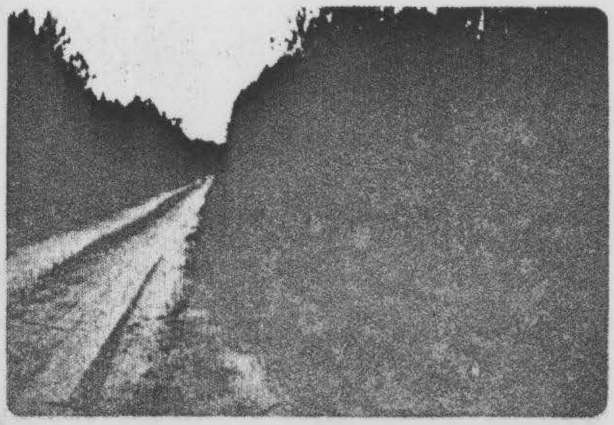
Converging vertical lines - When using a wide-angle lens, the camera must be held level to eliminate converging verticals.

Converging lines caused by not holding camera level

No converging lines as a result of holding the camera level

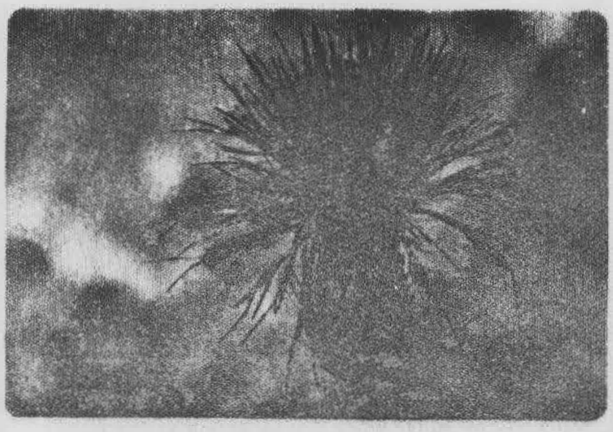
Dividing the frame - Do not divide the frame in half, vertically, horizontally or diagonally.

Frame divided in half by road

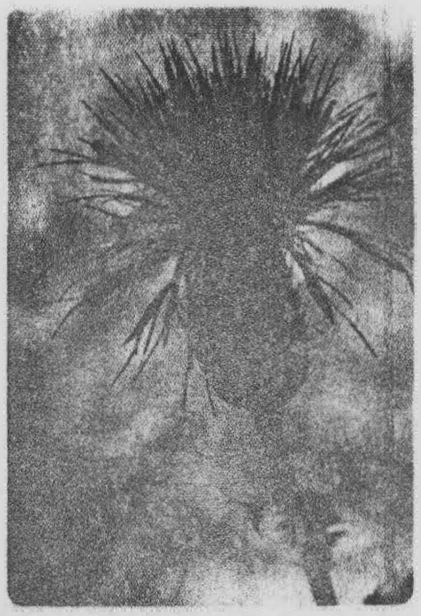


Frame divided with 2/3 of frame on right side of picture

Use the proper format - Use the format which best fits the subject to eliminate wasted space.

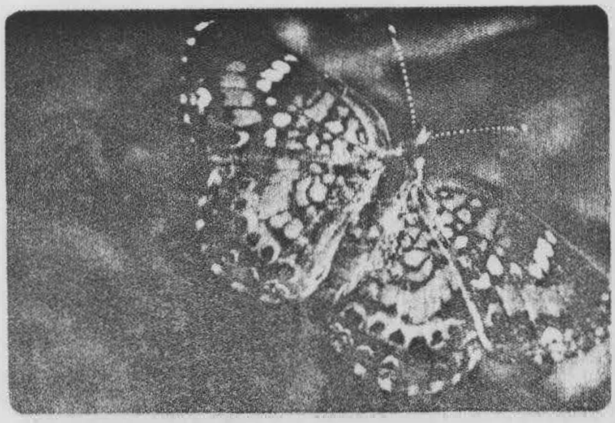


Flower does not fit the format.

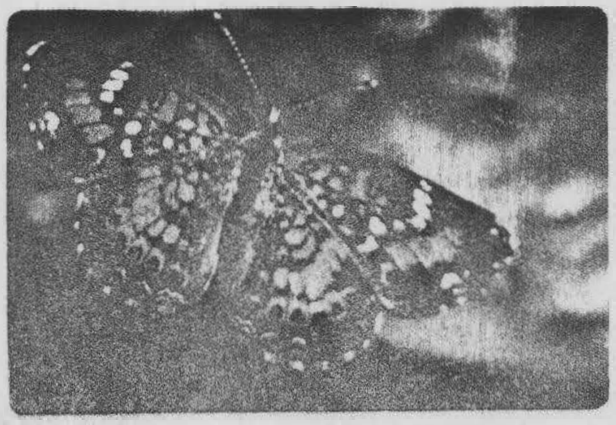


Proper selection of format with no wasted space

Placement of subject - Have subject led into the frame, not out of the frame.

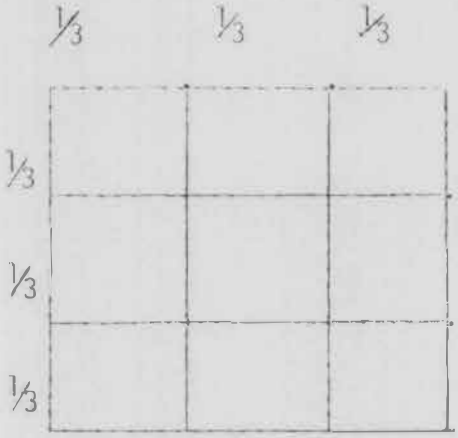


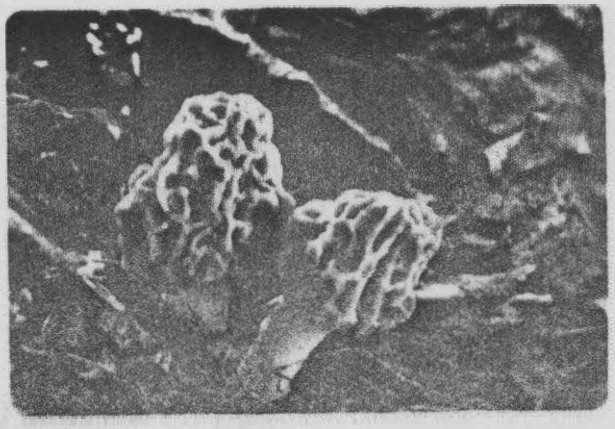
Subject leading out of the frame



Subject leading into the frame

*The best areas to place the subject are where the lines intersect.





Example of proper placement of the subject.